



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,366	02/25/2002	Walter Kastenhuber	50606	1346
26474	7590	03/31/2004	EXAMINER	
KEIL & WEINKAUF 1350 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			SORKIN, DAVID L	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,366

Applicant(s)

KASTENHUBER ET AL.

Examiner

David L. Sorkin

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. The claims as filed 29 December 2003 are examined herein. Although perhaps not particularly important, the examiner disagrees with applicant's statements filed 22 January 2004. The examiner does not agree that the copy of claims exhibited 22 January 2004 was submitted during the international prosecution. Firstly, the record reflects that applicant communicated in German during the international prosecution. While a German language amendment is of record, no English translation of this amendment is of record. Secondly, the amended claims filed during the international prosecution additionally differ from those exhibited 22 January 2004 in that the international claim 1 states "eine Anzahl einzelner gekrummter Flugel (2)" (a number of individual curved vanes (2)) whereas that exhibited 22 January 2004 reads "a number of individual vanes (2)" (see line 6 of the claim). Also line 8 of claim 1 as exhibited 22 January 2004 reads "the curved vanes (2)", whereas the international amendment reads simply "der Flugel (2)" (the vanes (2))). Furthermore, the examiner considers that claims of the amendment filed 29 December 2003 should have been marked up relative to English language claims filed under section 371 in the United States, not with respect to prosecution elsewhere.

Drawings

2. The proposed drawing correction is approved. Replacement sheets must be submitted.

Claim Rejections - 35 USC § 112

3. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how many impellers are required by these claims. Claim 1 uses the plural in line 3 (two occurrences) and the singular in lines 6 and 8. Also dependent claims 4, 7, 8 and 10 each refer to "the impeller" in the singular. The drawings only show a single impeller. It must be made clear how many impellers are being claimed. It is suggested that "impellers" be changed to - - impeller - - in each occurrence in line 3 and the "an impeller" be changed to - - the impeller - - in line 6.

4. Claims 2 and 3 are unclear for an additional reason. These claims recited "the angle (23) of entry into the pump spaces"; however, reference character "23" is the angle of exit accord to the specification. It is unclear what is meant by "the angle (23) of entry into the pumping spaces".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5-7, 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Weis (US 3,704,868). Regarding claim 1, Weis ('868) discloses an apparatus comprising a driven impeller (30) surrounded by a housing (11) and including

a number of vanes (32) being mounted in the region of the hub (see Figs. 1 and 2) wherein a number of individual curved vanes (32) are freely mounted on the shaft hub of an impeller so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Fig. 2). Regarding claims 2 and 3, while it is unclear what angle is being limited in these claims, the vanes of Weis ('868) emanate from the hub at an angle of 90 degrees and are spaced apart by 90 degrees as seen in Fig. 2 and col. 3 lines 1-5. Regarding claim 5, the curved vanes bounding the pumping spaces have the same path of curvature on the front and rear side (see Fig. 2). Regarding claim 6, the curved vanes have the same radius of curvature on the front and rear side (see Fig. 2). Regarding claim 7, the center line of the curved vanes on the impeller describe a segment of a circle between the enveloping curve and the center of the hub (see col. 2, line 63 to col. 3 line 5). Regarding claim 9, the ratio of the vane width to the vane thickness is greater than one (see col. 3, lines 26-38 and col. 4, lines 26-32). Regarding claim 11, Weis ('868) discloses an impeller (30) driven by a drive (19) and a number of vanes (32) being mounted in the region of the hub, wherein a number of individual curved vanes (32) are freely mounted on the hub of the impeller, so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Fig. 2). Regarding claim 12, Weis ('868) discloses an impeller (30) capable of being driven by a drive (19) and a number of vanes (32) being mounted in the region of the hub and surrounded by a housing (11), wherein a number of individual curved vanes (32) are freely mounted on the hub of an impeller, so that

pumping spaces on the front side and rear side of the curved vanes of the impeller are flowed through uniformly (see Fig. 2).

7. Claims 1-3, 5-8, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jost (US 1,646,913). Regarding claim 1, Jost ('913) discloses an apparatus comprising a driven impeller (52) surrounded by a housing (1) and including a number of vanes being mounted in the region of the hub (see Fig. 3) wherein a number of individual curved vanes are freely mounted on the shaft hub of an impeller (52) so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Figs. 1 and 3). Regarding claims 2 and 3, while it is unclear what angle is being limited in these claims, the vanes of Jost ('913) emanate from the hub at an angle of 90 degrees and are spaced apart by 90 degrees as seen in Fig. 3. Regarding claim 5, the curved vanes bounding the pumping spaces have the same path of curvature on the front and rear side (see Fig. 3). Regarding claim 6, the curved vanes have the same radius of curvature on the front and rear side (see Fig. 3). Regarding claim 7, the center line of the curved vanes on the impeller describe a segment of a circle between the enveloping curve and the center of the hub (see Fig. 3). Regarding claim 8, the edges of the curved vanes of the impeller are of a rounded form (see Figs. 1 and 3). Regarding claim 11, Jost ('913) discloses an impeller (52) driven by a drive (47,48,49) and a number of vanes being mounted in the region of the hub (see Figs. 1 and 3), wherein a number of individual curved vanes are freely mounted on the hub of the impeller (see Figs. 1 and 3), so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Figs. 1 and 3).

Regarding claim 12, Jost ('913) discloses an impeller (52) capable of being driven by a drive (47,48,49) and a number of vanes being mounted in the region of the hub (see Figs. 1 and 3) and surrounded by a housing (1), wherein a number of individual curved vanes are freely mounted on the hub of an impeller, so that pumping spaces on the front side and rear side of the curved vanes of the impeller are flowed through uniformly (see Figs. 1 and 3).

8. Claims 1-3, 5-7 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by DiPlacido (US 3,390,004). Regarding claim 1, DiPlacido ('004) discloses an apparatus comprising a driven impeller (that having vanes 10) surrounded by a housing (1) and including a number of vanes (10) being mounted in the region of the hub (see Fig. 4) wherein a number of individual curved vanes (10) are freely mounted on the shaft hub of an impeller so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Fig. 4). Regarding claims 2 and 3, while it is unclear what angle is being limited in these claims, the vanes of DiPlacido ('004) emanate from the hub at an angle of 90 degrees. Regarding claim 5, the curved vanes bounding the pumping spaces have the same path of curvature on the front and rear side (see Fig. 4). Regarding claim 6, the curved vanes have the same radius of curvature on the front and rear side (see Fig. 4). Regarding claim 7, the center line of the curved vanes on the impeller describe a segment of a circle between the enveloping curve and the center of the hub (see Fig. 4). Regarding claim 10, the enveloping curve of the impeller is surrounded by a spiral housing (1) (See Fig. 4). Regarding claim 11, DiPlacido ('004) discloses an impeller (that having vanes 10) driven

by a drive (39) and a number of vanes (10) being mounted in the region of the hub, wherein a number of individual curved vanes (10) are freely mounted on the hub of the impeller, so that pumping spaces on the front side and rear side of the vanes of the impeller are flowed through uniformly (see Fig. 4). Regarding claim 12, DiPlacido ('004) discloses an impeller (that having vanes 10) capable of being driven by a drive (3) and a number of vanes (10) being mounted in the region of the hub and surrounded by a housing (1), wherein a number of individual curved vanes (10) are freely mounted on the hub of an impeller, so that pumping spaces on the front side and rear side of the curved vanes of the impeller are flowed through uniformly (see Fig. 4).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weis ('868) in view of Wissman (US 4,722,664). The apparatus of Weis ('868) was discussed above with regard to claim 1. However, a PFA coating is not disclosed. Wissman ('664) teaches a PFA coating (see col. 2, lines 6-19). It is considered that it would have been obvious to one of ordinary skill in the art to have provided that impeller of Weis ('868) with a PFA coating, because Wissman ('664) explains that such a coating provides the benefit of corrosion resistance (see col. 1, lines 5-19).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jost ('913) in view of Wissman (US 4,722,664). The apparatus of Jost ('913) was discussed above with regard to claim 1. However, a PFA coating is not disclosed. Wissman ('664) teaches a PFA coating (see col. 2, lines 6-19). It is considered that it would have been obvious to one of ordinary skill in the art to have provided that impeller of Jost ('913) with a PFA coating, because Wissman ('664) explains that such a coating provides the benefit of corrosion resistance (see col. 1, lines 5-19).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiPlacido ('004) in view of Wissman (US 4,722,664). The apparatus of DiPlacido ('004) was discussed above with regard to claim 1. However, a PFA coating is not disclosed. Wissman ('664) teaches a PFA coating (see col. 2, lines 6-19). It is considered that it would have been obvious to one of ordinary skill in the art to have provided that impeller of DiPlacido ('004) with a PFA coating, because Wissman ('664) explains that such a coating provides the benefit of corrosion resistance (see col. 1, lines 5-19).

Response to Arguments

13. Glass ('070) and Wilson et al. ('977) are not applied to the claims as currently amended.

14. Applicant fails to point out any difference between the claimed structure and Weis ('868).

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Sorkin

David L. Sorkin
Examiner
Art Unit 1723